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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/547,660	09/01/2005	Per Hofvander	12810-00125-US	1628
23416	7590	09/07/2006	EXAMINER	
CONNOLLY BOVE LODGE & HUTZ, LLP P O BOX 2207 WILMINGTON, DE 19899			PAGE, BRENT T	
			ART UNIT	PAPER NUMBER
			1638	
DATE MAILED: 09/07/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/547,660	<b>Applicant(s)</b> HOFVANDER ET AL.	
	<b>Examiner</b> Brent Page	<b>Art Unit</b> 1638	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 December 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-27 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                 | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claims 1-5, 6 in part, 7, 9-11 in part, 12, and 16-27 in part, drawn to a method of increasing the production of starch in plants with enhanced expression of a starch biosynthesis gene wherein the gene comprises SEQ ID NO: 1 or variants/fragments thereof, or encodes SEQ ID NO:2 or variants/fragments thereof, an expression cassette, a host cell, and a transgenic plant all comprising said SEQ ID NO. The invention is further drawn to a nucleic acid.

Group II, claims 1-5, 6 in part, 7 in part, 9-11 in part, 13, and 16-27 in part, drawn to a method of increasing the production of starch in plants with enhanced expression of a starch biosynthesis gene wherein the gene comprises SEQ ID NO: 3 or variants/fragments thereof, or encodes SEQ ID NO:4 or variants/fragments thereof, an expression cassette, a host cell, and a transgenic plant all comprising said SEQ ID NO. The invention is further drawn to a nucleic acid.

Group III, claim 14, drawn to an amino acid of SEQ ID NO: 2.

Group IV, claim 15, drawn to an amino acid of SEQ ID NO: 4.

Group V, claim 8 in part, drawn to a method of increasing the production of starch in plants comprising culturing a plant with enhanced expression or activity with at least one starch biosynthesis enhancing protein wherein deficiency or decreased activity is achieved by knocking out the gene encoding the protein.

Group VI, claim 8 in part, drawn to a method of increasing the production of starch in plants comprising culturing a plant with enhanced expression or activity with at least one starch biosynthesis enhancing protein wherein deficiency or decreased activity is achieved by mutagenesis of the gene encoding the protein.

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Group VII claim 8 in part, drawn to a method of increasing the production of starch in plants comprising culturing a plant with enhanced expression or activity with at least one starch biosynthesis enhancing protein wherein deficiency or decreased activity is achieved by expression of an anti-sense RNA.

The inventions listed as Groups I-VII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The claims are related by the technical feature of a starch biosynthesis gene. However, this feature is not special since it does not constitute and advance over the prior art.

Tanaka et al (1995 Plant Physiology 108:677-683) teach a gene encoding a rice starch synthase (see figure 2, for example). The Examiner notes that because multiple embodiments with distinct sequences and structures are being claimed, the technical feature relating them is "a" starch biosynthesis gene rather than a particular starch biosynthesis gene.

Furthermore each group involves products and processes not required by the other so that groups are not linked by a single feature. Group I, a first product and first process, requires nucleotide sequences not required by any other Group. Group II, a second product and second process, requires nucleotide sequences not required by any other Group. Group III, a third product and third process, requires amino acid sequences not required by any other Group. Group IV, a fourth product and fourth process, requires amino acid sequences not required by any other Group. Group V, a fifth process, requires materials and methods for gene knock outs including constructs and nucleotide sequences not required by any other Group. Group VI, a sixth process, requires mutagenesis steps and materials not required by any other Group. Group VII requires anti-RNA sequences and constructs not required by any other Group.

Applicant is reminded that distinctly different DNA sequences are structurally distinct chemical compounds and are deemed to normally constitute independent and distinct inventions within the meaning of 35 U.S.C. 121. Absent evidence to the contrary, each such nucleotide sequence is presumed to represent an independent and distinct invention, subject to a restriction requirement pursuant to 35 U.S.C. 121 and 37 CFR 1.141 et seq.

Applicant is required to elect a Group above representing a single nucleotide sequence. Electing a sequence is not to be construed as a requirement for an election of species, since each nucleotide sequence is not a member of a single genus of invention, but constitutes an independent and patentably distinct invention.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brent Page whose telephone number is (514)-272-5914. The examiner can normally be reached on Monday-Friday 8-5.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on (571)-272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Brent T Page

DAVID T. FOX  
PRIMARY EXAMINER  
GROUP 180 1638

A handwritten signature in black ink, appearing to read 'David T. Fox', written over the printed name and group number.